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Oceans and the law of the sea: oceans and the law of the sea

Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its eighteenth meeting

Letter dated 30 May 2017 from the Co-Chairs of the Informal Consultative Process addressed to the President of the General Assembly

Pursuant to General Assembly resolution 71/257, we were appointed as the Co-Chairs of the eighteenth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea.

We have the honour to submit to you the attached report on the work of the Informal Consultative Process at its eighteenth meeting, which was held at United Nations Headquarters from 15 to 19 May 2017. The outcome of the meeting consists of our summary of issues and ideas raised during the meeting, in particular with regard to the topic of focus: "The effects of climate change on oceans". We should like to highlight that, in the meeting, renowned scientific experts and government representatives, whose presentations are available on the website of the Informal Consultative Process, contributed to enhancing knowledge about the link between climate and oceans, a critical question for the future of our planet.

In line with past practice, we kindly request that the present letter and the report be circulated as a document of the General Assembly under item 78 (a) of the preliminary list. As also mentioned in your intervention during the meeting, we request that the present letter and attached report be brought to the attention of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, which will be convened at United Nations Headquarters in New York from 5 to 9 June 2017.

(*Signed*) Kornelios **Korneliou**
Gustavo **Meza-Cuadra**
Co-Chairs

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Eighteenth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

(15-19 May 2017)

Co-Chairs' summary of discussions[1]

1. The United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (the Informal Consultative Process) held its eighteenth meeting from 15 to 19 May 2017. Pursuant to General Assembly resolution 71/257, the meeting focused its discussions on the topic entitled "The effects of climate change on oceans".

2. The meeting was attended by representatives of 70 States, six intergovernmental organizations and other bodies and entities and one non-governmental organization.[2]

3. The following supporting documentation was available to the meeting:

(a) Report of the Secretary-General on oceans and the law of the sea on the topic of focus of the eighteenth meeting of the Informal Consultative Process (A/72/70); and (b) format and annotated provisional agenda of the meeting (A/AC.259/L.18).

Agenda items 1 and 2
Opening of the meeting and adoption of the agenda

4. The Co-Chairs, Kornelios Korneliou, Ambassador Extraordinary and Plenipotentiary, Permanent Representative of Cyprus to the United Nations, and Gustavo Meza-Cuadra, Ambassador Extraordinary and Plenipotentiary, Permanent Representative of Peru to the United Nations, appointed by Peter Thomson, President of the seventy-first session of the General Assembly, opened the meeting.

5. Opening remarks were made by the Assistant Secretary-General for Legal Affairs, Stephen Mathias; the Assistant Secretary-General for Policy Coordination and Inter-Agency Affairs, Department of Economic and Social Affairs, Thomas Gass; and Programme Officer, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, Shifaana Thowfeequ, on behalf of the Secretary-General.

6. The meeting adopted the format and annotated provisional agenda and approved the organization of work, as orally amended.

Agenda item 3
General exchange of views

7. A general exchange of views took place at the plenary meetings on 15 and 18 May. Delegations highlighted the importance of the Informal Consultative Process, paying particular attention in their statements to the topic of focus, "The effects of climate change on oceans" (paras. 10-48 below). The discussions on the topic of focus within the panel segments are reflected in paragraphs 49 to 111 below.

[1] The summary is intended for reference purposes only and not as a record of the discussions.

[2] A list of participants is available on the website of the Division for Ocean Affairs and the Law of the Sea at http://www.un.org/Depts/los/index.htm.

8. Delegations welcomed the extension by the General Assembly of the mandate of the Informal Consultative Process, with a further review of its effectiveness and utility by the seventy-third session of the Assembly. They noted that the Informal Consultative Process served as a unique platform for integrating knowledge and facilitating the exchange of opinions among multiple stakeholders on key issues related to oceans and the law of the sea, including emerging issues. Delegations expressed continued support for the role of the Informal Consultative Process in promoting coordination among competent agencies and enhancing awareness of topics relating to oceans, including emerging issues, while promoting the social, economic and environmental pillars of sustainable development.

9. Appreciation was expressed to those who contributed to the voluntary trust fund for the purpose of assisting developing countries, in particular least developed countries, small island developing States and landlocked developing States, in attending meetings of the Informal Consultative Process. The Director of the Division for Ocean Affairs and the Law of the Sea provided an update on the status of the trust fund reiterating that the General Assembly, in its resolution 71/257, expressed its continued serious concern regarding the lack of resources available in the trust fund, and urged that additional contributions be made.

Topic of focus

10. Delegations welcomed the topic of focus, noting the urgent need to address the effects of climate change on oceans. They expressed appreciation for the report of the Secretary-General on oceans and the law of the sea (A/72/70), as a solid basis for discussions.

11. Delegations generally acknowledged that anthropogenic climate change was affecting the oceans, with environmental, social and economic impacts for all States and, in particular, developing countries, especially least developed countries, landlocked developing countries and small island developing States, as well as coastal African States. They underlined the imperative of immediate action to address such impacts and the need for continued coordinated international focus, in particular in view of the grave implications for countries with low-lying coasts, whose very existence was under threat.

12. In his remarks, the President of the General Assembly underlined the intrinsic link between the effects of climate change on oceans and sustainable development, including for the implementation of the 2030 Agenda for Sustainable Development. He also noted the relevance of the deliberations by the Informal Consultative Process to the upcoming United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (Ocean Conference), which would be convened at United Nations Headquarters in New York from 5 to 9 June 2017.

13. The Co-Chairs of the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, Juliette Babb-Riley (Barbados) and Carolyn Schwalger (New Zealand), introduced the Technical Abstract of the First Global Integrated Marine Assessment on the Impacts of Climate Change and Related Changes in the Atmosphere on the Ocean. The First Global Integrated Marine Assessment and the Technical Abstract were welcomed as tools to help guide discussions by the Informal Consultative Process.

14. Delegations underscored the importance of addressing the effects of climate change on oceans for the implementation of the 2030 Agenda, including, in

particular, Sustainable Development Goal 14. It was stressed that the negative impacts of climate change on oceans posed significant threats to the efforts of developing countries, in particular the least developed countries, landlocked developing countries and small island developing States, as well as coastal African States, to achieve sustainable development. In the view of several delegations, the 2030 Agenda would be more difficult to implement if the negative impacts on oceans owing to climate change were not addressed immediately.

15. Several delegations noted that the discussions on the topic of focus could form a substantive contribution to the Ocean Conference, spurring more ambitious action. A delegation encouraged participants to support efforts towards the registration of voluntary commitments ahead of the Conference to address the challenges faced by the oceans in a concrete and action-oriented manner.

16. Several delegations underscored the need for effective implementation of the United Nations Convention on the Law of the Sea, which set out the legal framework within which all activities in the oceans and seas must be carried out, and of related instruments. A delegation expressed the view that that would contribute to building resilience and enhancing ocean-based mitigation, including the absorptive capacity of oceans as carbon sinks, which would in turn support efforts to reach adaptation and mitigation targets under the Paris Agreement.

17. Reference was also made to the work of the General Assembly on the development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, which had a role in addressing the effects of climate change.

18. The importance of implementing the Paris Agreement and meeting the commitments under the United Nations Framework Convention on Climate Change were underlined by many delegations. The principle of common but differentiated responsibilities was underlined by several delegations in that context. Emphasis was also placed on implementation of the Kyoto Protocol, including the importance of the entry into force of the Doha Amendment relating to the second commitment period under the Protocol. Relevant goals under the 2030 Agenda, in particular Goal 14, the SAMOA Pathway, the Aichi Biodiversity Targets under the Convention on Biological Diversity and the Addis Ababa Action Agenda were also recalled.

19. Many delegations provided information on their national and regional actions, including intended nationally determined contributions to meet climate change-related commitments. Such action was aimed at the reduction of greenhouse gas emissions, the development of renewable energy, capacity-building, the establishment of marine-protected areas and awareness-raising. The reduction of greenhouse gas emissions was underscored by delegations as a priority.

20. It was suggested that General Assembly resolution 65/150, entitled "Protection of coral reefs for sustainable livelihoods and development", should be considered for further follow-up.

21. Ocean warming, ocean acidification and their cumulative impacts were highlighted as major effects of climate change on oceans. It was noted that associated impacts included sea level rise, extreme weather events, loss of polar ice, which in turn resulted in coastal inundation and erosion, destruction of infrastructure and property, saltwater intrusion, degradation of ecosystems as well as agricultural land, ocean stratification and hypoxia, or oxygen depletion, migration of fish stocks and coral bleaching. It was further noted that all of those impacts were affecting the oceans in addition to many existing cumulative pressures, such as

overfishing and harmful fishing practices, pollution, habitat degradation, loss of biodiversity and ocean noise.

22. Climate change and its impacts were recognized as posing a significant risk to people, economies and peace and security, affecting food security, livelihoods, human health and culture, including underwater cultural heritage. Least developed countries, landlocked developing countries, small island developing States and low-lying coastal countries, as well as coastal African States, were particularly vulnerable to such impacts.

23. In that regard, several delegations highlighted the need to enhance cooperation and coordination, including through capacity-building and the transfer of technology, to mitigate and adapt to the effects of climate change on oceans.

24. Delegations underscored that oceans absorbed more than 90 per cent of the excess heat generated by increases in atmospheric greenhouse gases, causing ocean warming and substantially affecting marine species as well as ecosystems and biodiversity. The strongest warming was projected for surface waters in the tropics and northern hemisphere subtropical regions. Delegations also highlighted that ocean warming was a driving factor for sea level rise and extreme weather events.

25. Concern was expressed by many delegations about the possibility of the total or partial loss of land territory as a result of sea level rise, and its effect on maritime zones and boundaries, in particular for low-lying islands and coasts. It was also noted that the sea level was not rising uniformly, with some areas experiencing three times the global average. In addition to the loss of sovereign territory, the effects on populations living in coastal areas and the possible loss of hundreds of billions of dollars in infrastructure were highlighted. It was noted that in some countries, communities were already being earmarked for possible relocation as a result of sea level rise.

26. Some delegations called for the issue of sea level rise and its legal implications for small island developing States to be discussed by the Sixth Committee of the General Assembly or the International Law Commission. A delegation made specific reference to the need to consider the legal implications of sea level rise for maritime delimitation. However, concern was also expressed regarding those proposals, and the need to further discuss them was underlined.

27. Attention was drawn by some delegations to the melting of ice shelves in polar regions as a result of ocean warming, with Arctic sea ice being the lowest in records going back almost 50 years. It was expected that the Arctic might have an ice-free summer around the middle of this century. It was also highlighted that with melting ice and retracting snow-cover, the newly open waters and bare ground absorbed more heat, thereby further amplifying warming. The thawing of permafrost in polar regions also released trapped greenhouse gases, which then amplified emissions. It was noted that a new scientific assessment of the Arctic Monitoring and Assessment Programme of the Arctic Council had concluded that the Arctic was shifting, rapidly and in unexpected ways, into a new state. Global warming also caused the melting of ice in high mountainous areas, which led to a rise in avalanches, flooding and landslides and exacerbated sea level rise through the net addition of water to the ocean.

28. Many delegations expressed concern about the increase in the intensity of extreme weather events, including tropical cyclones, typhoons, hurricanes, El Niño/La Niña and the associated floods and landslides, as well as droughts owing to changes in weather patterns which had been linked to ocean warming. Several delegations also noted that increased migration towards coastal areas was expected as a result of drought inland, which could only exacerbate the situation in those areas.

29. It was noted that climate change had led to fewer but more intense tropical cyclones globally and exacerbated phenomena such as the El Niño Southern Oscillation. Extreme weather events were noted not only to cause loss of life and destruction of property and infrastructure, but more broadly, to roll back development gains, undermine economic growth and livelihoods and endanger food security and access to water, sanitation, health and housing, threatening the enjoyment of basic human rights.

30. The need for international cooperation in order to ensure a timely response to disasters and weather-related hazards, prevent major damage and protect vulnerable populations was emphasized by delegations. In that regard, the importance of developing coordinated multi-hazard early warning systems and risk assessments was highlighted. A delegation suggested using a climate resilience toolkit to help to prepare communities for such hazards.

31. With approximately a quarter of the carbon dioxide emitted having been absorbed by the ocean and causing ocean acidification, delegations expressed concern about the threats posed by increasing ocean acidification to ocean ecosystems, in particular coral reefs, and economic sectors such as fisheries and tourism. Several delegations called for the use of an array of tools, including scientific research, ocean and coastal monitoring, mapping and assessment, to better understand the impacts of ocean acidification on coastal and marine ecosystems. Several delegations also noted the importance of reductions of sulphur in marine fuel in mitigating ocean acidification.

32. A number of delegations provided information on action in regard to ocean acidification, including national activities, such as the development of national policy and action plans and of ocean acidification monitoring systems. Examples of international cooperation, for example through the Global Ocean Acidification Observing Network, were also highlighted.

33. Delegations pointed out that ocean warming impacted the distribution, reproduction and abundance of marine species, which in turn could negatively influence the catch potential of fish and invertebrates.

34. It was noted that fish provided essential nutrition for more than 3 billion people and at least half of the animal protein and essential mineral needs for 400 million people in the poorest countries. In addition, fisheries and aquaculture directly or indirectly provided livelihoods for more than 500 million people worldwide.

35. The movement of stocks away from low latitudes, where small-scale subsistence fisheries provided food security for many communities, towards higher latitudes, and more developed countries, was noted with concern. Capture fisheries and aquaculture contributed to more than one third of animal protein intake in Africa, while for some coastal African States, it was as high as two thirds. In order to meet the food demand by 2020, aquaculture production in Africa would have to increase by nearly 500 per cent. A delegation raised the need to assess equitable mechanisms for distribution of fish protein owing to the impact of ocean warming on the migration of fisheries in tropical and subtropical areas affecting weaker economies.

36. Several delegations also expressed concern that the effects of climate change on fish stocks would further exacerbate the problems caused by unsustainable fishing practices. In that regard, it was suggested that further discussion on the redistribution of the catch potential of living marine resources was needed.

37. Several delegations noted that oceans hosted many vulnerable ecosystems that were being damaged by the impacts of ocean acidification and climate change, including extreme weather events, sea level rise, natural disasters, coral bleaching

and, in some regions, devastating algal blooms, such as some species of sargassum in certain areas.

38. In particular, coral reefs were being affected by ocean acidification and warming as well as changes in ocean upwellings, thus negatively affecting associated economic sectors, such as fisheries and tourism. It was reported that reefs around the world were in the midst of the longest and worst bleaching event on record. Cooperation through mechanisms, such as the International Coral Reef Initiative, was considered essential.

39. The benefits of blue forest ecosystems, such as mangrove forests, seagrass meadows, saltwater marshes and kelp forests, were highlighted by some delegations as providing multiple ecosystem services, including enhancing carbon stocks, which had the ability to sequester and store carbon; protection against coastal erosion, storms, and flooding; fish habitats; improving water quality; and supporting local economies through fishing, tourism and the provision of building materials and ingredients for medicines. Some delegations provided information on their action at the international and national levels in promoting the conservation and sustainable use of blue carbon ecosystems to support climate change mitigation and adaption action.

40. The need to enhance the resilience of ocean ecosystems and their ability to adapt to climate change was generally recognized. To that end, several delegations called for measures, such as the reduction of land-based pollution, the elimination of destructive fishing practices, improved monitoring of ocean acidification and ocean warming, enhanced ocean governance mechanisms and the establishment of marine-protected areas and other effective area-based management tools, such as marine spatial planning. Several delegations noted the relevance of achieving the global target of conserving 10 per cent of marine and coastal areas and promoting the effective management of marine-protected areas. The need to enhance adaptation and build the resilience of coastal communities was also underlined.

41. Recognizing the important mitigation role of oceans as carbon sinks, several delegations noted the lack of understanding with respect to the potential use of geoengineering technologies, such as solar radiation management, ocean fertilization and carbon dioxide sequestration, to enhance ocean-based mitigation. Other delegations highlighted that many of those potential mitigation measures were very costly, had large environmental footprints and could affect the integrity of the ecosystem. In that regard, the use of the precautionary approach was called for. Several delegations called for more interdisciplinary research and environmental assessments to better understand the impacts of geoengineering on biodiversity and ecosystem functions and services and of socioeconomic, cultural and ethical issues and regulatory options.

42. The potential use of technologies, such as energy efficiency improvements, plasma batteries, oxygen-hydrogen separation and energy sources such as solar, wind, thermal and nuclear power for climate change mitigation were also noted.

43. It was generally recognized that additional research, in particular on mitigation and adaptation measures, was required. Several delegations called for targeted research on the link between climate change and oceans to help to manage human activities and to mitigate their effects on the ocean environment. Gaps in consistent data coverage of oceans and infrastructure to collect and disseminate data and information, as well as the use of data in capacity and risk management were noted.

44. Delegations called for improved monitoring of ocean acidification and ocean warming and further research on cumulative impacts, including of climate change, on oceans. It was also recognized that further assessments of land/sea physical interaction were necessary and that the United Nations could play a bigger role in

that respect. A call was also made for the mandate of the United Nations Environment Programme (UNEP) to be strengthened in that regard. It was noted by a delegation that underwater cultural heritage sites had a role in monitoring the effects of climate change over time.

45. Delegations welcomed the decision of the Intergovernmental Panel on Climate Change to prepare a special report on the ocean and cryosphere in a changing climate, to be finalized in September 2019. The importance of the First Global Integrated Marine Assessment was also underlined. Examples of research efforts and programmes at the national and regional levels were provided, as well as those of intergovernmental organizations, including the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO).

46. Needs with respect to scientific research on the effects of climate change on oceans were underlined, including more comprehensive studies on the impact of sea level rise, which were currently fragmented, and more studies to determine the impact of rising water temperature, as well as ocean acidification. The need for additional financial resources to fund research was also underlined, alongside needs related to technology, expertise and modelling to predict the impact of climate change and plan adaptation as well as mitigation measures.

47. Many delegations emphasized the need for capacity-building and the transfer of technology, including in the context of official development assistance, and access to funding, in order to assist developing States in the implementation of commitments relating to climate change mitigation and adaptation. In that regard, several delegations highlighted that developed countries, having been historically responsible for greenhouse gas emission levels that contributed to climate change, should contribute to financing the costs of climate change responses, including by fulfilling their pledge of an annual contribution of $100 billion by 2020. In that context, several delegations drew attention to the common but differentiated responsibilities principle under the United Nations Framework Convention on Climate Change, Kyoto Protocol and Paris Agreement and the special needs and vulnerabilities of developing countries to climate change, in particular least developed countries, small island developing States, African coastal States, low-lying coastal countries and middle-income countries.

48. Delegations reiterated the need for international cooperation and coordination, including concerted action to combat the effects of climate change on the oceans, noting that owing to the interconnected nature of the oceans, those effects and ensuing environmental, social and economic impacts could not be overcome by any single State. It was noted that both private and public sectors would need to be engaged in the process, including through economic incentives for mitigation action. Cooperation among relevant ministries and multi-stakeholder participation were also highlighted, given that they could enhance political support and foster a whole-of-society approach. Several delegations highlighted the importance of involving local communities.

Area of focus: The effects of climate change on oceans

49. In accordance with the format and annotated provisional agenda, the discussion panel on the topic of focus was organized in two segments structured around: (a) the effects of climate change on oceans, including environmental, social and economic implications; and (b) cooperation and coordination in addressing the effects of climate change on oceans: current action and opportunities for further enhancement. The segments were launched by presentations from panellists, followed by interactive discussions.

1. The effects of climate change on oceans, including environmental, social and economic implications

(a) Panel presentations

50. In the first segment, the Vice-Chair of the Intergovernmental Panel on Climate Change, Ko Barrett, provided a presentation on the findings from the Panel's fifth assessment report and preparations for the sixth assessment report, including the special report on the ocean and cryosphere in a changing climate. Françoise Gaill of the Committee for Marine and Coastal Research (France) and the Centre national de la recherche scientifique addressed ecosystem services and how climate change might impact them. The Government Secretary General and Deputy Director General, First Institute of Oceanography, State Oceanic Administration of China, Fangli Qiao, provided insights into the Chinese experience with developing climate projections and predictions, including challenges and possible solutions to improve climate models. Francisco Armando Arias Isaza, Director General of the Institute for Marine and Coastal Research in Colombia, highlighted the effects of climate change on Colombia, as well as action and planning tools to address such effects. Elva Escobar Briones of the Universidad Nacional Autonoma de Mexico gave a presentation on climate change in ocean systems in Mexico, with a focus on challenges and opportunities for cooperation, in particular in support of science as a basis for policymaking. Philip Sutton of the National Institute of Water and Atmospheric Research of New Zealand shared insights on oceanic impacts on regional climate and the importance of the Argo Programme in achieving global coverage of measurements of ocean temperature and salinity. Lisa Beal of the School of Marine and Atmospheric Science at the University of Miami noted the importance of western boundary currents in moderating the Earth's climate and addressing the impacts of climate change on oceans. Elizabeth Jewett of the Office of Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration discussed recent research on ocean acidification, including projected effects and possible local mitigation strategies. Katharina Fabricius of the Australian Institute of Marine Science focused on the implications of ocean acidification on species and ecosystems and discussed possible short-term management strategies. Dimitri Gutiérrez Aguilar of the Institute of Marine Research in Peru gave a presentation on climate change effects on ocean productivity and oxygenation, with a focus on the South-Eastern Pacific. Jennifer Howard of Conservation International gave a presentation on coastal and marine ecosystems and how mangroves, tidal marshes and seagrass meadows had the highest potential for climate mitigation. Marlene Moses, Permanent Representative of Nauru to the United Nations and representative of the Alliance of Small Island States, delivered a statement on the impacts of climate change on low-lying islands and threats to the existence of such nations owing to sea level rise, loss of freshwater supplies, fish migration and coral bleaching. Carlos Garcia Soto of the Spanish Institute of Oceanography shared insights on the major climate change drivers impacting fisheries and aquaculture. William Cheung of the University of British Columbia in Canada addressed mitigation and adaptation actions required to sustain global marine fisheries under the threat of climate change. Nathalie Hilmi of the Monaco Scientific Centre stressed the need to bridge the gap between ocean acidification impacts and economic valuation and shared outcomes from the workshop series "Bridging the gap between ocean acidification impacts and economic valuation". Essam Yassin Mohammed of the International Institute for Environment and Development gave a presentation on the impacts of climate change on fisheries and the implications for food security in sub-Saharan Africa. Lastly, Maria Fossheim of the Institute of Marine Research of Norway highlighted arctic biodiversity loss and other ecosystem effects of climate change in Arctic waters.

(b) Panel discussions

51. Delegations observed that the figures highlighted by the presenters regarding the long-term effects of climate change and ocean acidification were extremely concerning.

52. Some delegations concurred with the panellists on the importance of developing climate change models and the need for supportive data, particularly from the deep ocean, and asked how knowledge could be improved. They highlighted some of the challenges in obtaining data in situ from deeper water, which required more expensive equipment, whereas satellites could be used to gather data from shallower water. It was underlined that the sharing of knowledge and research infrastructure, as well as capacity-building, could allow the international research community to better understand how oceans, marine ecosystems and ocean communities would continue to be affected by increasing greenhouse gas emissions.

53. Ms. Gaill indicated that new tools were being developed and employed to monitor waters below 2,000 metres in depth, although that was very expensive. Mr. Qiao observed that, while climate models were very important in predicting the impacts of climate change, it was also important to take into account physical processes to improve models, such as surface wave intensity.

54. Mr. Arias Isaza added that, while improved technology was allowing data to be gathered from deeper areas, the speed of improvement in data collection was not matched by the capacity of researchers to analyse and interpret the data. International cooperation was needed to facilitate the sharing of knowledge and the transfer of technology and to improve responses.

55. In response to a question on why there were not more Argo units in some areas in the South Pacific, Mr. Sutton noted that Argo floats collected data globally, but were not designed to operate in areas shallower than 1,000 metres. He added that floats that could be deployed at shallower depths were being developed.

56. Mr. Sutton pointed out that Argo floats had also been used to collect information for El Niño forecasting. However, with respect the most recent El Niño event off the coast of north Peru, he noted that it was atypical, had evolved very quickly and was the first event of its kind in modern records.

57. A delegation noted that discussions on climate change were mostly focused on adaptation measures and stressed that more attention should be placed on mitigation action and creating societal changes, including creative approaches that would, for example, encourage corporate responsibility or increase awareness and literacy in respect of the impacts of climate change on the oceans. Ms. Barrett noted in that regard that the Intergovernmental Panel on Climate Change was organized in working groups designed to address all components of climate change, including mitigation.

58. In response to a question relating to the concept of loss and damage, as incorporated in the Paris Agreement, Ms. Barrett indicated that the Intergovernmental Panel on Climate Change provided the scientific basis for policy decisions, including in the context of the United Nations Framework Convention on Climate Change. Relevant scientific literature on the issue would therefore be considered in either the Panel's sixth assessment report or the relevant special report.

59. The vulnerability of coral reefs, which had been affected in recent years by a global mass bleaching event caused by ocean warming, was highlighted. Reducing global greenhouse gas emissions and building the resilience of coastal areas were identified as essential to prevent further negative impacts. Reference was made to Australia's Reef 2050 Plan which, among other things, sought to increase the resilience of the Great Barrier Reef to longer-term threats such as climate change.

International cooperation and joint action to build the resilience of coral reefs was also seen as essential. The International Coral Reef Initiative was cited as a good example of such cooperation. In the coming years, scientists were expected to have enough data to make predictions on bleaching events.

60. Some participants stressed the vulnerability of islands, in particular low-lying islands, to sea level rise caused by climate change and the need for technology transfer and capacity-building for States on the "front line" of the impacts of climate change. Particular vulnerabilities were highlighted in relation to land disappearance and limited options for relocation, with consequent existential challenges, as well as impacts on fresh water supplies and food production owing to salt water infiltrations. In response to a question on what priority action was being taken by countries that produced large amounts of greenhouse gases to address the negative effects on island States, Mr. Qiao noted that those countries were also greatly impacted by climate change, including higher-intensity storms, and were implementing the necessary responses. A delegation raised a question concerning the impact of melting icecaps on low-lying islands. In response, Ms. Barrett noted that the special report of the Intergovernmental Panel on Climate Change on the ocean and cryosphere in a changing climate recognized those linkages and would contain a chapter on sea level rise and implications for low-lying islands, coasts and communities. A chapter box on low-lying islands and coasts had been included in recognition of the specific threats faced by those areas.

61. In response to a question on whether it was possible to control heat transport in ocean current systems to mitigate climate change, Ms. Beal noted that it was not possible for humans to realistically manage those systems. She highlighted that the ocean was absorbing approximately 90 per cent of the excess heat energy trapped in the climate system owing to greenhouse gas emissions. It was extremely relevant, however, to understand how the ocean stored that energy and when and where it would be fed back to the atmosphere. She noted that understanding ocean circulation was primary in addressing those questions.

62. In addressing a comment related to the discrepancy between a decreasing trend in sea surface temperatures observed in the South-Eastern Pacific and an increasing trend predicted from regional climate models, Mr. Gutiérrez Aguilar noted that, while a coastal cooling trend in temperature had prevailed for the past 40 years, recent assessments indicated that that trend was changing. Observations over the past decade showed a retreat of the coastal upwelling front, which would indicate decreasing upwelling, which was likely to be a consequence of warming offshore.

63. A question was raised as to whether marine-protected areas could be used as a tool to rehabilitate dead zones or hypoxic areas in the ocean. Ms. Jewett noted that the main drivers of coastal hypoxic areas were nutrient pollution from land-based activities and temperature changes. In her view, marine-protected areas could have a beneficial effect in raising awareness of policymakers in respect of the need to address land-based pollution in conjunction with efforts to protect coastal areas.

64. In addressing the effects of ocean acidification in specific areas, Ms. Jewett noted that they would continue to be experienced in the distant future owing to the high levels of carbon dioxide already in the atmosphere and being absorbed by oceans. Ms. Fabricius added that current levels of carbon dioxide in the oceans still allowed coral reefs to grow, but indicated that projections to the end of the century were very concerning and highlighted the need to curb greenhouse gas emissions.

65. In response to a question relating to the impact of federal legislation on ocean acidification in the United States of America, Ms. Jewett explained that the regulations focused on providing for increased research and monitoring to gain a better understanding of how ocean acidification was affecting coastal waters. She

noted that scientists and industry in the United States were exploring potential local adaptation measures, but that was at a very preliminary stage and needed further investigation.

66. Responding to a question relating to the amount of the world's carbon dioxide emissions being absorbed by the oceans, Ms. Jewett explained that, while there might be some regional variability in carbon uptake owing to differences in primary productivity, scientists were confident that the oceans were absorbing about 27 per cent of emissions overall. That figure was the result of extensive research based on long-term international ocean observation efforts. She noted that more research was necessary to determine how global warming would affect the ocean's capability to take up carbon dioxide.

67. In response to a question on the recognition of the role of seagrasses in natural sequestration of carbon dioxide, Ms. Fabricius noted that those habitats were an important focus of the blue carbon economy. Ms. Howard highlighted the immense potential of seagrasses, mangroves and salt marshes in mitigation strategies and highlighted the work of the International Blue Carbon Initiative. Reference was also made to the European Union regulations identifying seagrass meadows as a priority habitat, which required its member States to protect and preserve at least 60 per cent of such meadows as part of the Marine Natura 2000 Network.

68. In response to concerns raised regarding a potential lack of knowledge related to the impact that carbon sequestration could have in an integrated ecosystem like the oceans, Ms. Howard noted that more research was needed to fully understand the details of carbon movement in both ocean and terrestrial ecosystems. However, she explained that there was already significant research to account for the majority of carbon movement within the carbon cycle. In particular, she noted that there was sufficient scientific evidence proving the significant potential of mangroves, salt marshes and seagrass for climate change mitigation.

69. Concerns were raised with respect to the possibility of the release of previously sequestrated carbon back into the atmosphere caused by the degradation of marine ecosystems, and it was suggested that potential sanctions on countries for allowing such degradation were needed. In response, Ms. Howard highlighted that under the United Nations Framework Convention on Climate Change and greenhouse gas accounting, countries had to account for gains and losses in greenhouse gas emissions in different sectors. She added that if coastal ecosystems were a prioritized sector, countries would need to account for both sequestration and storage of carbon dioxide, as well as emissions from destructive activities, just as they would for terrestrial ecosystems.

70. Additional concerns were raised regarding the increasing focus on the potential for carbon sequestration by marine ecosystems, as opposed to emission reduction. Ms. Howard agreed that emissions reductions were more significant than any sequestration value from a natural system. She added that, based on estimates by Conservation International, only 30 per cent of the climate change mitigation recommended under the Paris Agreement could be achieved by carbon sequestration from natural systems. The remaining 70 per cent would need to be based on emission reduction strategies.

71. A view was expressed that, owing to possible extensive damage to key economic and social infrastructure from the effects of climate change on oceans, there was a need to address those issues from a security perspective, at the global, regional and national levels.

72. Regarding the effect of ocean warming on the migration patterns of tropical and subtropical fisheries, Ms. Beal noted that changes in temperature would have an

effect on where fish would reproduce and feed, therefore affecting the distribution of pelagic species. Ms. Jewett also noted that the fifth assessment report of the International Panel on Climate Change discussed changes in the distribution of species in response to changes in temperature.

73. A number of delegations highlighted the impacts of climate change and ocean acidification on fisheries, including shifts in the distribution ranges of species towards the poles and deeper water owing to ocean warming and destruction of marine ecosystems caused by extreme weather events, as well as ocean deoxygenation and harmful algal blooms.

74. A question was asked on the availability of research on the impacts of deoxygenation on fish stocks. Mr. Garcia Soto noted that deoxygenation was an issue that could affect fisheries in semi-enclosed seas, such as the Black Sea and parts of the Mediterranean. Mr. Cheung noted the sensitivity of pelagic fisheries to oxygen-poor zones in the open ocean and indicated that the distribution of tuna stocks in the Atlantic was impacted by those zones.

75. In response to a question concerning the impacts of extreme weather events on fisheries and aquaculture, Mr. Cheung underlined the importance of considering such impacts and noted, for example, pressures on fish stocks resulting from an increase in fishing for subsistence purposes after an extreme weather event. He also highlighted the importance of conserving and managing fish stocks and ecosystems in order to increase their resilience and help to reduce the impacts of such extreme events on coastal communities.

76. A delegation expressed concern about the impact of climate change on Arctic marine ecosystems. A question was raised on the impact of the loss of sea ice on lower trophic levels in the Arctic ocean, specifically, the impacts of under-ice algal blooms, as well as the prevalence and seasonal variance of open-ice algae and how it affected the food web. Ms. Fossheim explained that there was a fallout of algae from marginal sea ice melting that fuelled benthic production on the bottom of the ocean. When the open sea ice was already lost, however, that effect did not occur, which created a system that was more pelagically dominated.

77. In response to a question regarding the importance of fisheries policies for adaptation to the impacts of climate change, Mr. Garcia Soto stressed the need for policymakers to take into account social needs, national interests and scientific advice in a balanced manner. He also emphasized the role of dialogue in resolving conflicts caused by shifts in the distribution patterns of fish stocks.

78. A delegation raised the possibility of considering the efforts of States to respond to the impacts of climate change on fisheries in determining the allocation of the total allowable catch to States in regional fisheries management organizations. Ms. Hilmi noted in that context that quotas needed to be negotiated using both current data and future projections and emphasized the importance of involving both scientists and policymakers in that regard.

79. Responding to a question on gaps in understanding climate change implications for fisheries and aquaculture, Mr. Cheung emphasized the need for ecosystem-based fisheries management and noted the work of the Food and Agriculture Organization of the United Nations (FAO) on climate change adaptation in fisheries in terms of, inter alia, stock assessments, ecosystem-scale considerations and the precautionary approach. The need to educate fishers and increase consumer awareness, including by changing their consumption habits in favour of sustainable fish stocks and climate-resilient aquaculture species was also mentioned as a way of tackling the problem of overfishing. The importance of linking Sustainable Development Goal 14 with Goal 12 was underscored in that regard.

80. The utility of "dynamic marine-protected areas" in addressing the migration of fish stocks outside existing marine-protected areas owing to climate change was noted by Messrs Garcia Soto and Cheung and a delegation. Mr. Cheung also noted the benefits of dynamic marine-protected areas in coastal waters in restoring fisheries and supplementing existing management measures, including the reduction of by-catch. He also stressed the need for shorter timescales in the design of such measures. Mr. Cheung highlighted the importance of incorporating projected environmental changes into the design of marine-protected areas and networks of marine-protected areas in order to include both current and future predicted habitats.

81. In response to a question, Mr. Cheung noted that there was no single way to designate dynamic marine-protected areas, but suggested the need to consider remote sensing data on oceanographic features in areas beyond national jurisdiction to locate sensitive pelagic resources. He indicated that regional fisheries management organizations could designate marine-protected areas taking into account dynamic elements, such as temperature patterns in different seasons, as well as the need for a portfolio of measures to protect and restore fish stocks, including ecosystem-based approaches. Further information on the concept of dynamic marine-protected areas, including best practices, was considered useful by some delegations, including how such tools might help to restore fish stocks, despite ocean acidification and ocean warming.

82. A delegation raised the possibility of incorporating dynamic marine-protected areas into the negotiations for an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, to be developed under General Assembly resolution 69/292. Mr. Cheung stressed the benefits of dynamic marine-protected areas in areas beyond national jurisdiction in addressing the impacts of climate change on fisheries. Mr. Garcia Soto noted that the tool could also be incorporated into existing fisheries agreements.

83. Mr. Garcia Soto and a delegation emphasized the need to consider local priorities in developing fisheries management measures, such as marine-protected areas, as opposed to universal solutions or targets. It was important in that regard to allow for adjustments in marine-protected areas and area closures in the light of the best available scientific information and to consider different types of area-based management tools. Attention was drawn in that regard to the existing practice of the North-East Atlantic Fisheries Commission.

84. The negative impacts of climate change on fisheries in developing countries and their coastal populations, as well as their vulnerabilities, were highlighted by a number of delegations. Messrs Mohammed and Garcia Soto pointed to the need to address the impact of climate change on small-scale fisheries, given their importance in poverty and hunger eradication and the fulfilment of the Sustainable Development Goals, including Goal 14. It was noted in that context that small-scale fisheries provided up to 60 per cent of the global fish catch and employed more than 90 per cent of fishers globally, the majority of whom were from developing countries. Mr. Mohammed called for an institutional bias in favour of small-scale fisheries to enable those communities to be more resilient to the impact of climate change.

85. Mr. Garcia Soto also recalled the importance of Goal 14 for States with limited capacity. Possible means of addressing the impacts of climate change on developing States were mentioned, such as capacity-building and transfer of technology, training in alternative livelihoods and access to trade. The need to address the issue of coastal erosion was also emphasized.

86. Mr. Cheung pointed to the ultimate need to meet emissions targets under the Paris Agreement, but also noted the importance of adaptation measures in the

medium term and short term that could help to reduce climate change impacts on communities and States, for example, by reducing local stressors, maintaining critical habitats for fish stocks and providing a wider portfolio of livelihood opportunities.

2. Cooperation and coordination in addressing the effects of climate change on oceans: current action and opportunities for further enhancement

(a) Panel presentations

87. In the second segment, Hernan Garcia of the National Oceanic and Atmospheric Administration's National Environmental Data Satellite, Data and Information Service, National Centers for Environmental Information, gave a presentation on integrated global ocean databases for documenting ocean variability. Vladimir Ryabinin of IOC-UNESCO highlighted the role of the Global Ocean Observing System and its inputs into, inter alia, early warning systems, global and regional assessments and forecasting. Sindre Langaas of the Norwegian Institute for Water Research gave a presentation on the role of "blue forests" in capturing and storing atmospheric carbon and providing a variety of other beneficial ecosystem services, both nationally and globally. Assistant Secretary-General and Head of the New York Office of UNEP, Elliot Harris, described regional strategies to address climate change through the application of ecosystem-based adaptation. Bethan O'Leary of the Environment Department of the University of York in the United Kingdom of Great Britain and Northern Ireland gave a presentation on the way to build resilience into ocean management, with a focus on marine reserves in a changing climate. Cyrille Frederic Marie Barnerias highlighted the work of the Global Environment Facility (GEF) in climate change finance, including lessons learned and ways forward. Hassan Moustahfid of FAO described current actions and identified solutions and opportunities in addressing the effects of climate change on fisheries and aquaculture. Muhammad Lukman highlighted the work of the Coral Triangle Initiative on coral reefs, fisheries and food security, including efforts to address the impacts of climate change and ocean acidification, and other anthropogenic impacts, on coral reefs in the region. Andi Eka Sakya of the Meteorological, Climatological and Geophysical Agency of Indonesia described the effects of climate change on people living in coastal areas in Indonesia and the mitigation and adaptation efforts in the country, with a focus on early warning systems. Lastly, Christina Hioureas of Foley Hoag gave a presentation on the effects of rising sea levels on maritime boundaries and deterritorialization, including the legal consequences of shifting baselines, changes in the characterization of maritime features and disappearing States.

(b) Discussion

88. It was stressed that, while scientific research was an ongoing process, the need to further develop marine scientific research, such as ocean observations and monitoring in order to improve scientific understanding of the impacts of climate change on the oceans, should not delay action to address climate change. Evidence of the effects of climate change on the oceans was already incontrovertible and societal changes were needed to reduce global emissions. In response, Mr. Ryabinin highlighted that climate science would have a very important role in identifying solutions, including with regard to ocean observations and data collection, carbon capture and storage and the effects of climate change on fisheries.

89. In response to a comment on the importance of marine scientific research, including in situ monitoring and scientific observation, Mr. Garcia indicated that there was a need for different levels of ocean observation systems. Whereas in situ observations, such as Argo floats, provided data on long-term ocean processes, space-based satellite measurements were more appropriate for faster developing

events. Mr. Ryabinin also noted that newer observation systems, such as gliders, would be useful in regions beyond the scope of Argo floats, such as polar regions. A delegation underlined the need for greater and more robust observing systems.

90. Messrs Ryabinin and Garcia and a delegation stressed the importance of maintaining the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology in Situ Observing Platform Support Centre, which monitored the locations of Argo floats and informed coastal States when such floats were likely to enter exclusive economic zones.

91. The role of ocean observations in predicting El Niño Southern Oscillation events was raised. Mr. Ryabinin responded that such events could never be perfectly predicted, but noted that progress had been made. The 2015-2016 El Niño event, for example, had been predicted. He stressed that worldwide observations, which were now available to all, were of utmost importance. Mr. Ryabinin also noted in that regard the Coupled Model Intercomparison Project, Phase 6, which was a freely available climate modelling project and had climate modelled predictions up to 2300.

92. In the context of ecosystem-based adaptation strategies, it was noted by a delegation that some Regional Seas Programmes faced significant limitations and were in need of additional support from UNEP, for example, in the North-west Pacific. Mr. Harris noted that, while the Regional Seas Programmes had different mandates and levels of support, funding and success, UNEP already assisted the Programmes in different ways. He suggested that the Regional Seas Programmes were an underutilized platform for cooperation between States in addressing the effects of climate change on the oceans, including in the context of cooperation with regional fisheries management organizations. He hoped that UNEP member States would work to strengthen Regional Seas Programmes and deploy them to address common issues, including ecosystem-based adaptation strategies for climate change.

93. In response to a question concerning the interaction of the UNEP Regional Seas Programmes with organizations working on marine science, Mr. Harris highlighted the potential of such Programmes to build capacity and establish frameworks to share regionally relevant information with regional and global partners. Mr. Ryabinin pointed to the long-standing cooperation between UNEP Regional Seas Programmes and IOC-UNESCO and noted that the current memorandum of understanding between the organizations was being updated in the light of Sustainable Development Goal 14. Mr. Langaas noted that, while the Regional Seas Programmes had traditionally focused on marine pollution and had limited capacity to address integrated ocean management, opportunities for improvement were available. In that regard, he drew attention to a 2012 UNEP report entitled "Blue Carbon — Opportunities for the Regional Seas Conventions and Action Plans".

94. It was noted with interest that kelp forests might also have a hitherto unrecognized role in carbon sequestration, although Mr. Langaas noted that further research was needed given that the estimates of possible carbon sequestration were wide-ranging.

95. A question was raised as to whether dynamic marine-protected areas could address issues related to the migration of fish stocks owing to climate change. Ms. O'Leary noted that area-based management tools were already used in fisheries management, for example, to mitigate by-catch, but they did not address other uses of the ocean, such as seabed mining. She indicated that, while predictions had been developed on changes in fisheries distribution owing to climate change, the science was uncertain and had not been well incorporated into fisheries management. Ms. O'Leary stressed the need for a range of tools in protecting fish stocks and for marine-protected areas to take into account both existing and future conditions.

96. In response to a question concerning the use of the Global Ocean Observing System by regional fisheries management organizations, Mr. Ryabinin noted that there was no direct relationship or agreements between IOC-UNESCO and existing regional fisheries management organizations. However, he noted the availability and existing use of scientific research and observation data in various sectors, including fisheries management, to support decision-making.

97. Mr. Garcia noted that there were a number of capacity-building opportunities to improve the capacity of developing States to analyse data in support of evidence-based informed policy decisions, including the IOC-UNESCO courses on international oceanographic data and information exchange. Attention was also drawn by some delegations to cases where capacity-building was being implemented through joint programmes or initiatives on maritime observation and analysis between competent agencies of Member States.

98. Mr. Ryabinin stressed that developing capacity in respect of ocean research and observation was one of the most important targets for IOC-UNESCO. He recalled that IOC-UNESCO, in cooperation with the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs, had recently held the Regional Training Course on the Conduct of Marine Scientific Research under the United Nations Convention on the Law of the Sea in Saint Lucia and announced that another training course would be held with the assistance of the Korea Maritime Institute in the near future. He also noted that the Ocean Teacher Global Academy, with its rapid expanding system and network of regional centres, was developing online courses, taught in local languages, focusing on such areas as climate change, biodiversity, data handling and integrating research into policies, while incorporating traditional knowledge. He encouraged all Member States to participate in activities held under the auspices of IOC-UNESCO in order to derive the related benefits.

99. Mr. Ryabinin announced that during the upcoming Ocean Conference, IOC-UNESCO would unveil the *Global Ocean Science Report: The Current Status of Ocean Science around the World*, which was an attempt to measure worldwide capacity for marine scientific research, particularly in developing counties. He noted that the report and online database would detail current capacity in ocean science in terms of people, infrastructure, investment, interest and publications.

100. In response to questions on the process of securing funding from GEF, Mr. Barnerias described the funding and implementation process. He suggested that developing States should approach GEF at the beginning of the funding cycle and noted an average time of two years between an application for financing and implementation of a project. Mr. Barnerias clarified that GEF funding was also available to economies in transition in some circumstances, particularly those that had ratified annex E to the Montreal Protocol on Substances that Deplete the Ozone Layer. He indicated that GEF could also assist States in defining priorities for funding and noted in that context the role of national focal points. He also mentioned the possibility of funding for regional or cross-border projects.

101. A delegation queried whether proactive approaches to access funding and resources had been developed for countries that were most affected by climate change. In response, Mr. Barnerias called attention to an upcoming Pacific regional workshop that would clarify needs and GEF funding opportunities. A question was also raised on the possibility of funding for marine-protected areas, especially in areas beyond national jurisdiction. Mr. Barnerias explained that, while a fund was being set up to finance marine-protected areas, additional financing would be needed to ensure their long-term sustainability. With regard to marine-protected areas on the high seas, which were not currently a specific mandate for GEF, financing would require partner contributions and rules for resource allocation.

102. Addressing a question regarding available funding to develop the monitoring capacities of States to combat illegal, unreported and unregulated fishing, Mr. Moustahfid noted that FAO had undertaken capacity-building initiatives, including to assist States in implementing the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing.

103. In response to a question relating to inter-agency cooperation and coordination, Mr. Barnerias noted that GEF funding was also implemented through its collaboration with 18 other organizations. Mr. Moustahfid reported that FAO collaborated with many organizations to address fisheries adaptation to climate change, including GEF, the Green Climate Fund, the World Bank and the African Development Bank. FAO also collaborated with UNEP, among many others, including through the Regional Seas Programme, towards the implementation of ecosystem approaches, as well as on climate change. Mr. Lukman recalled that the Coral Triangle Initiative was working in a harmonized way with regional partners to synergize resources for addressing climate change, but noted difficulty in obtaining the necessary funding, including regionally.

104. In response to a question regarding the incorporation of traditional knowledge into the work of the Coral Triangle Initiative, Mr. Lukman responded that such knowledge was embedded as part of its participatory process.

105. A delegation stressed the importance of involving the private sector in data collection and analysis. Another delegation expressed concern that, for people living in atolls, the usefulness of early warning systems was limited, given that they could not evacuate to higher ground and lacked the necessary infrastructure to relocate people quickly. In response, Mr. Sakya noted that precursor technology was being developed to give warning 5 to 25 days in advance of an earthquake event to ensure that people could evacuate the area in time. He expressed the hope that that technology could be embedded in tsunami warning systems in the future.

106. IOC-UNESCO noted that the organization would conduct a review of standard operating procedures for all types of warnings to ensure the minimization of damage and loss of life. However, there were significant uncertainties in assessing and anticipating sea level rise in different regions.

107. Addressing a question concerning the type of information conveyed through "climate field schools", Mr. Sakya noted that the information included short-term and long-term data and trends based on parameters of relevance to the area selected by the participants.

108. A delegation queried how to enhance legal certainty and stability and address gaps in the current international legal framework in the light of the impacts of climate change on maritime boundaries. Ms. Hioureas recommended concluding maritime delimitation agreements. Another delegation noted that maritime delimitation negotiations were costly and time-consuming, while joint development agreements concluded with a neighbouring country could apply to all unresolved maritime issues, such as fisheries. Ms. Hioureas suggested that efforts should be taken to enter into or ensure that joint development agreements remained in existence despite changing circumstances owing to climate change. She noted, for example, that in some cases entitlements might no longer overlap as a result of shifting baselines. A delegation expressed the view that entering into delimitation agreements too soon might require having to reopen negotiations when additional changes took place owing to sea level rise and expressed a preference for joint development agreements. Differing views were expressed concerning the legal implications of arbitral awards relating to the law of the sea.

109. In response to a question concerning the consequences of sea level rise in the case of fixed coordinates included in maritime boundary treaties, Ms. Hioureas noted that, while a fundamental change of circumstances could not be invoked as a ground for terminating or withdrawing from a treaty establishing a boundary, possible grounds for doing so might exist, considering that the issue of geographic uncertainty had not been contemplated during the negotiations of the United Nations Convention on the Law of the Sea. She also noted the possibility of including relevant clauses in maritime boundary treaties to address changing circumstances and prevent disputes in the future. A delegation reiterated that a fundamental change of circumstances could not be invoked as a ground for terminating or withdrawing from a treaty establishing a boundary. The delegation also stressed the need to ensure stability in international law and expressed caution about overemphasizing the use of joint development zones as an alternative to maritime boundary delimitation, noting that they presupposed the legitimacy of claims.

110. In response to a question concerning funding for legal expertise necessary for maritime boundary negotiations, Ms. Hioureas noted that there was interest from private foundations in supporting State activities in that regard in the light of sea level rise. Mr. Moustahfid also indicated that FAO could assist with activities related to issues within its mandate.

111. Noting the need for in-depth legal analysis of the impacts of sea level rise on the law of the sea, some delegations suggested that the topic could be included on the agenda of the Sixth Committee of the General Assembly or the International Law Commission. A delegation noted that the workload of the Sixth Committee was already heavy and that a future meeting of the Informal Consultative Process could focus on that issue.

Agenda item 4
Inter-agency cooperation and coordination

112. The Under-Secretary-General for Legal Affairs and United Nations Legal Counsel made a statement, in his capacity as Focal Point of UN-Oceans, providing information on the activities of UN-Oceans since the seventeenth meeting of the Informal Consultative Process, including in relation to the topic of focus.[3]

113. He stated that UN-Oceans continued to implement its mandate to strengthen and promote the coordination and coherence of United Nations system activities related to oceans and coastal areas, noting the momentum for oceans resulting from the Ocean Conference. The Focal Point called attention to the organization of two UN-Oceans side events during the Conference, to be held on 5 June 2017, and in collaboration with UN-Water, on 7 June 2017. The UN-Oceans members had also actively contributed to the review of draft concept papers for the seven partnership dialogues to be held at the Ocean Conference. UN-Oceans members had also agreed to register a voluntary commitment focusing on raising awareness on ocean-related regulatory and policy frameworks and members' activities in support of their implementation.

114. In the light of the forthcoming review of the terms of reference of UN-Oceans at the seventy-second session of the General Assembly, the Focal Point of UN-Oceans drew attention to some of the achievements of UN-Oceans to date, including the launch of the UN-Oceans inventory of mandates and activities, and effective cooperation and coordination among all relevant agencies. He highlighted challenges and potential opportunities for enhanced inter-agency cooperation and coordination. Regarding future opportunities for UN-Oceans, the Focal Point

[3] The full statement is available from www.unoceans.org/documents/en/.

pointed to, among other things, the need to better engage existing members but also other key organizations, such as the secretariat of the United Nations Framework Convention on Climate Change. He emphasized that UN-Oceans members were willing to "Deliver as one", to assist States in the implementation of the 2030 Agenda and in particular Sustainable Development Goal 14. With the necessary support, UN-Oceans members could further engage in capacity-building and awareness-raising activities on issues related to coastal and ocean areas. The Focal Point noted that an enhanced role for UN-Oceans would require a revision of its terms of reference to provide a clear mandate to, in particular, develop joint projects. Financial support would also need to be considered.

Agenda item 5
Process for the selection of topics and panellists so as to facilitate the work of the General Assembly

115. Referring to paragraphs 333 and 335 of General Assembly resolution 71/257, the Co-Chairs invited views and proposals on ways to devise a transparent, objective and inclusive process for the selection of topics and panellists, so as to facilitate the work of the Assembly. No statements were made.

Agenda item 6
Issues that could benefit from attention in the future work of the General Assembly on oceans and the law of the sea taking into account resolution 71/257 on the topic of the nineteenth meeting of the Informal Consultative Process

116. The Co-Chairs drew attention to the composite streamlined list of issues that could benefit from attention in the future work of the General Assembly and invited comments from representatives, while recalling the decision of the Assembly that the topic of focus for the Informal Consultative Process at its nineteenth meeting, in 2018, would be "Anthropogenic underwater noise". Some delegations expressed their satisfaction with the topic of focus for the nineteenth meeting of the Informal Consultative Process.

117. The issue of sustainable consumption and production patterns, in particular with regard to the sustainability of the oceans, was highlighted by some delegations for inclusion in the list of issues. The Co-Chairs invited any representative wishing to propose additional issues for inclusion in the list to submit them to the Co-Chairs or to the Secretariat in writing before the end of the meeting.

118. Some delegations noted that suggestions for topics to be considered by the Informal Consultative Process were without prejudice to the negotiations by the General Assembly on the resolution on oceans and the law of the sea.

119. A delegation suggested that the Informal Consultative Process could provide an appropriate forum to review, on a regular basis, implementation of Sustainable Development Goal 14 and other ocean-related goals of the 2030 Agenda. Another delegation recalled that the High-level Political Forum on Sustainable Development was the body for the review and follow-up of the 2030 Agenda.

120. The importance of the Informal Consultative Process as a unique and informal forum allowing participation by scientific and technical experts along with government representatives to discuss a wide range of issues on the law of the sea was underlined.